



## Welcome to Science Bits!

Dear reviewer,

This document includes a product description of Science Bits for the purpose of product evaluation in the TN Department of Education adoption cycle for 2016–2018. It contains a set of practical orientations and recommendations to access our website. The Science Bits educational program is also explained from a pedagogical perspective so the actual usage of Science Bits can be envisaged in the right context. These are complemented by video demonstrations, which go over the features and potential of our proposed solution.

## Science Bits

Science Bits is a collection of multimedia science lessons for middle school. These lessons are meticulously aligned to the **TN Science Standards**, with specific content repertoires for each subject matter in science. They are designed to foster educational practice through supporting teacher immersion in the constructivist model and in the use of Technology in the classroom.

All Science Bits units have a homogenous structure based on the **5E Instructional Model**. They include all the elements of a complete 5E learning process, from engaging students to evaluating them.

- **Engage:** a motivating video presents an initial situation familiar to the student and exposes some initial concepts. Then, a discussion activity about the video activates student's prior knowledge.  
Engage activities are normally designed to be performed as front-of-classroom activities, with the whole class, and led by the teacher (in a facilitating/moderating role).
- **Explore:** a guided inquiry-based activity challenges the student's initial knowledge and conceptions. In this stage you will find virtual experiments, interactive explorations, Predict–Observe–Explain video-activities, etc.  
Explore activities are also designed to be performed as front-of-classroom activities to, with the whole class or smaller groups, and led by the teacher (in a facilitating/moderating role).

- **Explain:** the conceptual contents of the lesson are formally presented in a systematic manner, using a wide range of multimedia resources. At this point, the ideas which have been learned both intuitively and through discovery are formalized and made universal. Every concept developed in this section is accompanied by interactive exercises that aim at consolidating what has been learned by means of practice. Explain activities are designed to be carried out in groups, using a digital whiteboard, or individually on the student's computer. When teacher-led, she'll be in explanation role.
- **Elaborate:** this section includes a problem-based activity. This activity requires the application of concepts, attitudes, and procedures learned by the student in the unit. Elaborate activities are designed to be performed as group assignments, like any project-based learning.
- **Evaluate:** this section includes two resources of high educational value: one for review and another one for assessment. The first one is a video which reviews the concepts in the unit. The second one is a final self-correcting test based on the principles of skills assessment. The test is not based on the evaluation of the students' ability to learn concepts by heart, but on the practical application of the knowledge acquired. Evaluate activities are designed to be performed in a self-paced mode by the student, either in the classroom (like any traditional exam) or at home, but with a limited time slot.

You can find a more detailed explanation of our usage of the 5E Instructional Model on this video: <http://www.science-bits.com/quickoverview/> As well as this one, which was produced for teachers to create the right expectation with students on the first day of a new science course: <https://www.youtube.com/9CiXeB-Wa60>

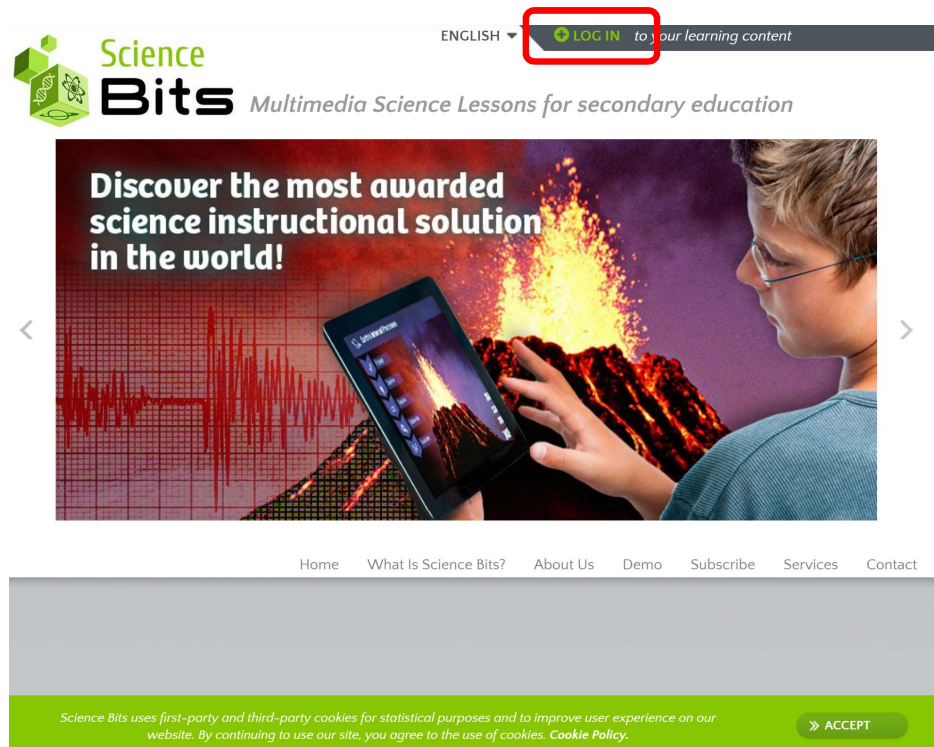
## Login information

We are pleased to present you with your personal credentials for your review. Together with this document you should have received your personal user id and password. We've created one Teacher evaluation license and one Student evaluation license for each reviewer so you have access to both teacher and student views for your review.

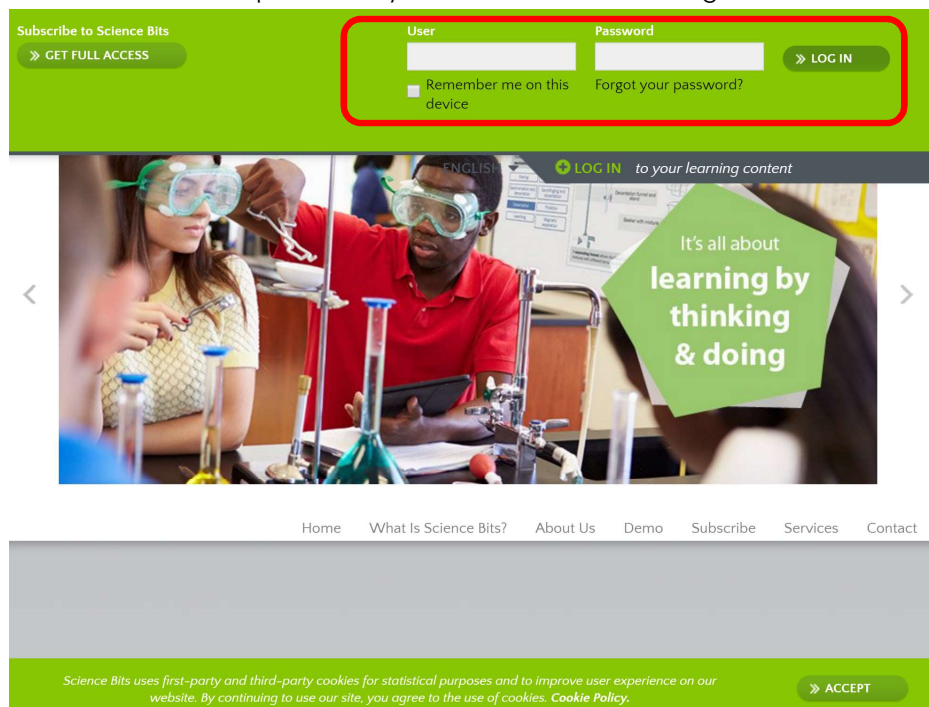
You will always be logged back in where you left off. Navigation is Easy! Have fun!

## Navigating Science Bits

1. Go to [www.science-bits.com](http://www.science-bits.com)
2. In the top right corner, click “Log In”

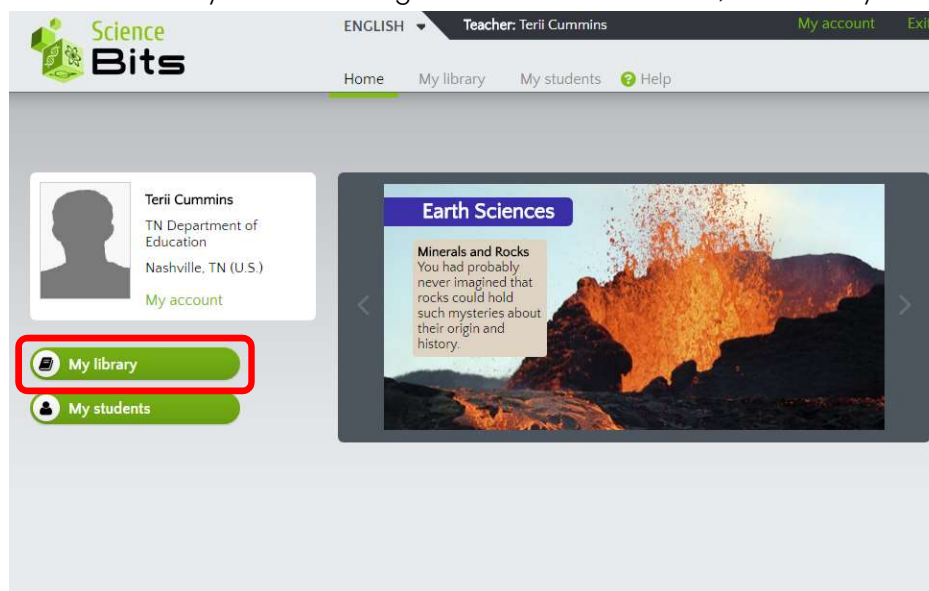


3. Type in the username and password you received and click log in.



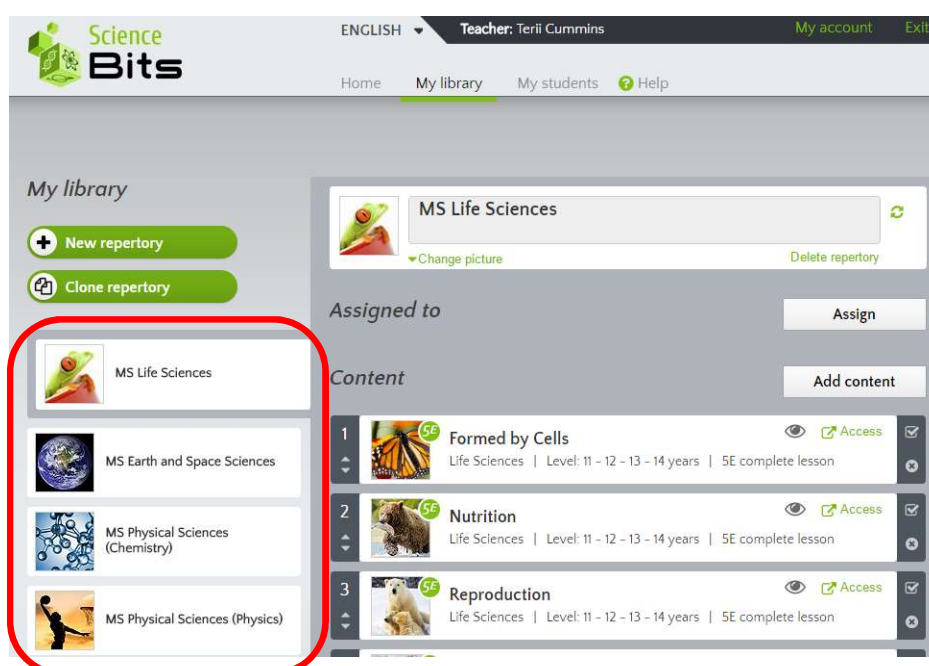
The login page features a green header with a 'Subscribe to Science Bits' button and a 'GET FULL ACCESS' button. A red box highlights the login fields: 'User' and 'Password' input boxes, a 'Remember me on this device' checkbox, a 'Forgot your password?' link, and a 'LOG IN' button. Below the header is a banner image of students in a lab with the text 'It's all about learning by thinking & doing'. A navigation bar includes links: Home, What Is Science Bits?, About Us, Demo, Subscribe, Services, Contact. A footer contains a cookie policy notice and an 'ACCEPT' button.

4. Once successful, you will be brought to your home page, which looks like the picture below. To see the library of content aligned to the TN Standards, click on “My Library”.

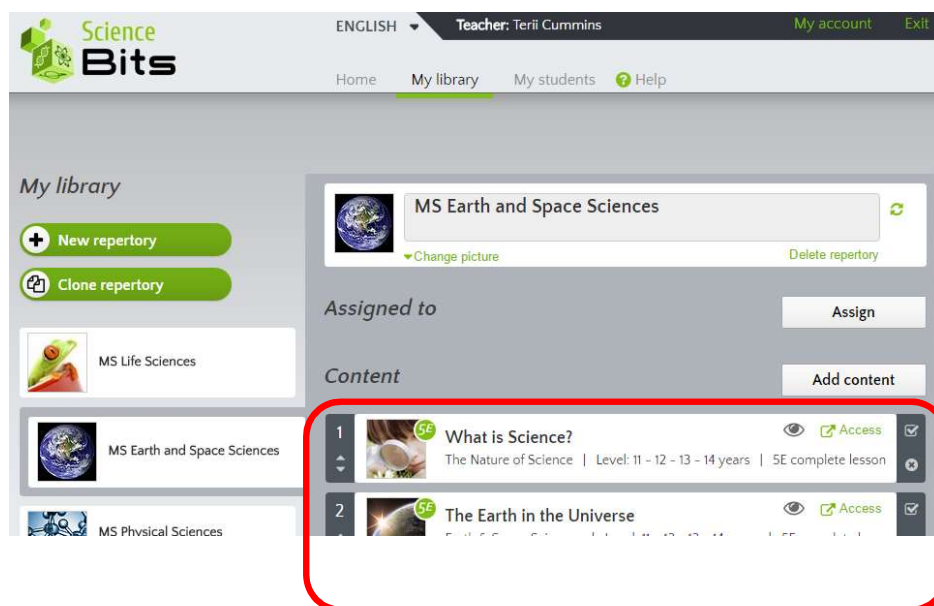


The home page shows the user's profile: Terii Cummins, TN Department of Education, Nashville, TN (U.S.), with a 'My account' link. A red box highlights the 'My library' button. The page also features a 'Home' button, 'My library' button, 'My students' button, and a 'Help' button. A large image of a volcano is displayed with the text 'Earth Sciences' and 'Minerals and Rocks'. A navigation bar at the top includes links: Home, My library, My students, and a 'Help' button.

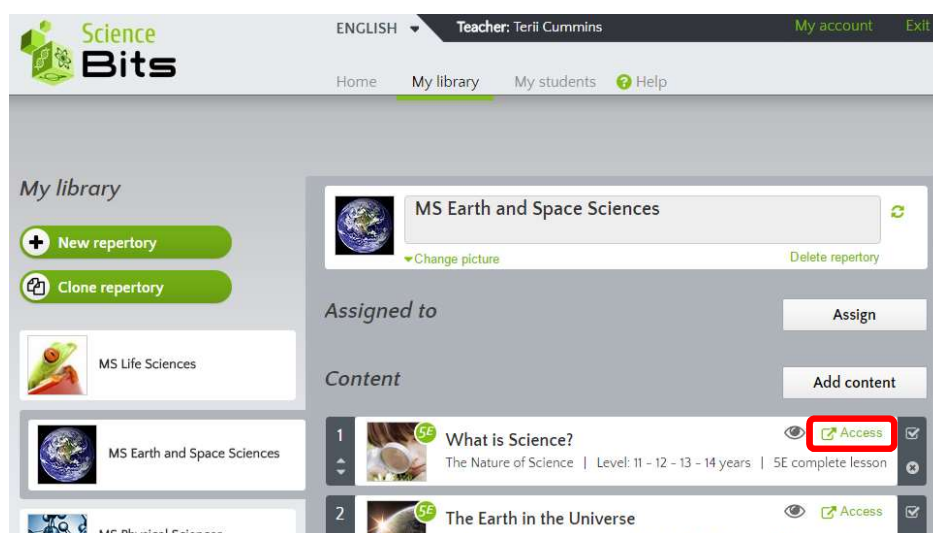
5. You will then see the content repertoires aligned to TN Standards “by subjects”. Click on the one you wish to review.



- After you choose the repertory to review, you will see the list of 5E complete units in order of delivery. Note that these repertories can easily be changed in scope and sequence at any time by simply clicking and dragging the content.

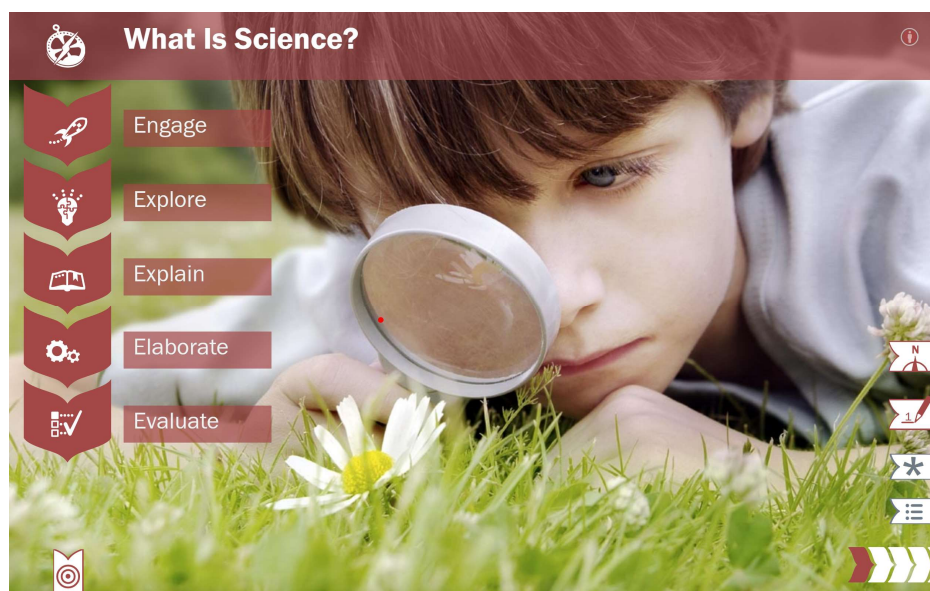


- If you wish to view the content, simply click on the “Access” button on the right-hand side of the piece of content.

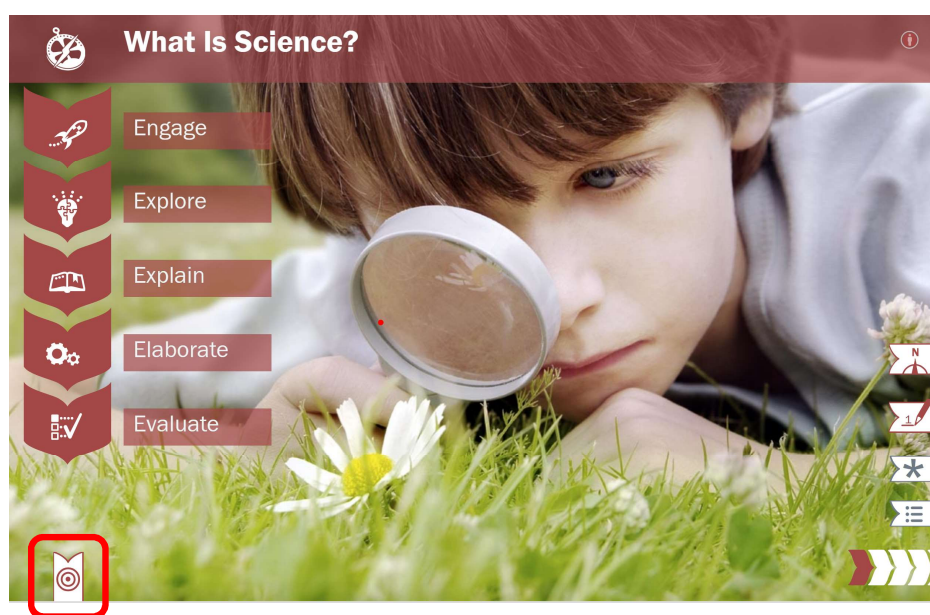




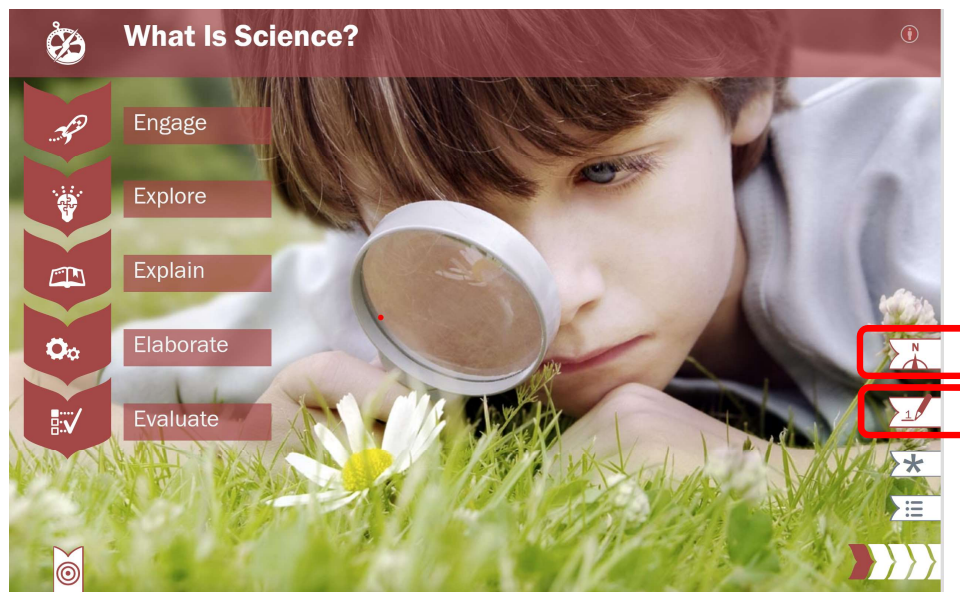
8. This will open the 5E unit in a new window.



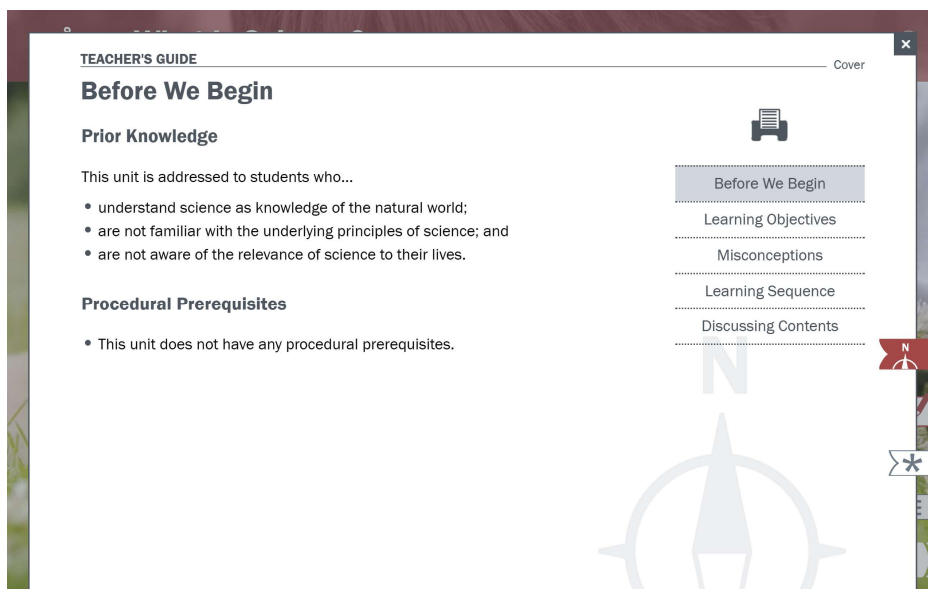
9. Everything on the cover page of a unit is a clickable button. If you click on the target in the bottom left, it will show you the objectives a unit will cover.



10. On the right-hand side, the compass button will bring up the teacher resource guide. The Teacher's Guide will show expectations of prior knowledge and prerequisites the students must know for this unit. It also shows learning objectives, common misconceptions and recommendations for a lesson plan (learning sequence) and content discussion.

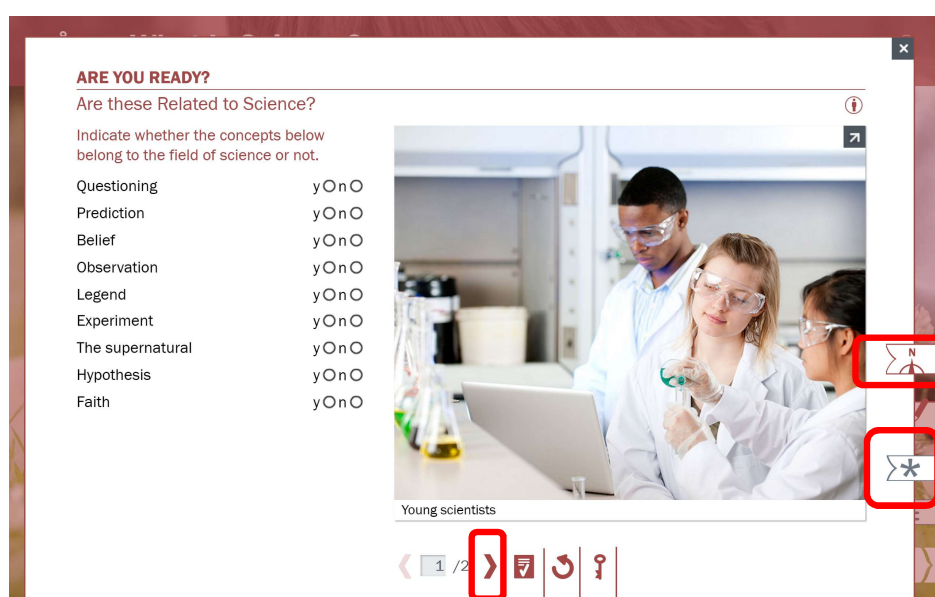






11. The pen icon will bring up a knowledge check. These are questions to ensure the students are ready and capable of learning the content and help mobilizing prior knowledge, as well. When ready, click on the right arrow in the bottom center to move to the next page.

Notice that the Teacher's Guide stays visible in the background. Its content adapts to the screen that is being displayed, so the recommendations given to the teacher are always specific to the activity being performed. This is designed so teachers always have easy access to the guide for the content they are currently on. When done, click on the x button of the knowledge check to bring up the cover page again.



12. The asterisk icon brings up a printable PDF version of the unit, so teachers can print hardcopies of the activity, when there is not a large enough number of student devices (i.e. in environments far from 1-to-1).
13. The lines icon brings up a table of contents of the unit, so it can easily be jumped around in.
14. When ready, you can click on the titles of any of the E's and begin reviewing content. When you are done with the section, close the browser window to take you back to the library of content.

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## Student view vs. Teacher view

All the functionality explained in this document has been created on the teacher view of Science Bits. The student interface is a simplified version of the Teacher view, without the access to the sections students do not need (Teacher's Guide, Solution Key, Grading interface, Student monitoring, etc.).

There is also an important difference from the perspective of which content is available to the user. All our teacher licenses provide full access to the full science content repository (all subjects, all grades, all languages...).

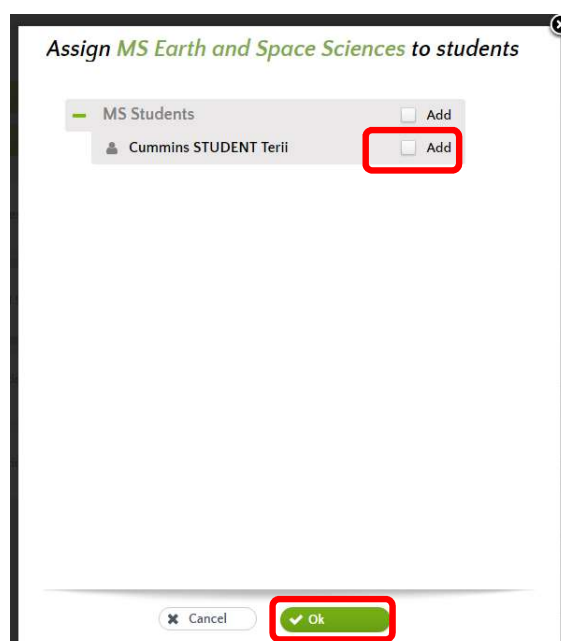
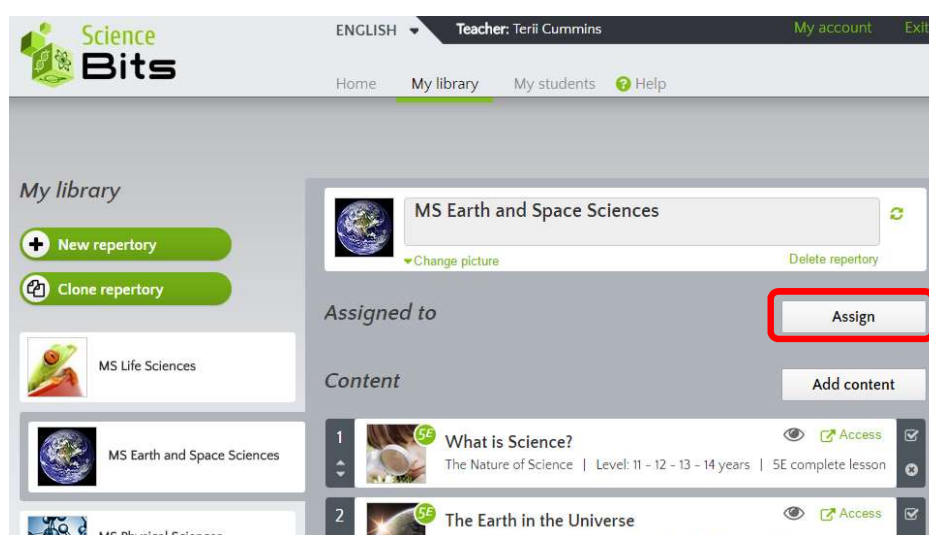
A teacher then decides which content her students get to see through the assignment of a content repertory/ies. A teacher can then create different repertories with diverse levels of difficulty or diverse languages and assign them to subgroups within a class, to personalize their instruction.

If needed, she can pull content from a year ahead for advanced students or from a year behind for students with recovery needs. She can also have part of a class following the units in English and another part doing it in Spanish.

Your student license does not yet have any content repertory associated to it, so you will not be able to see any unit if you login using it.

YOU NEED TO LOGIN WITH YOUR TEACHER LICENSE AND ASSIGN CONTENT REPERTORIES TO YOUR STUDENTS BEFORE THEY CAN SEE ANY CONTENT. Any of the standard TN repertories provided with your Teacher license will work.

1. In order to do that, on the “My Library” page you need to press the “Assign” button, select the relevant students checking the “Add” checkbox, and click OK.



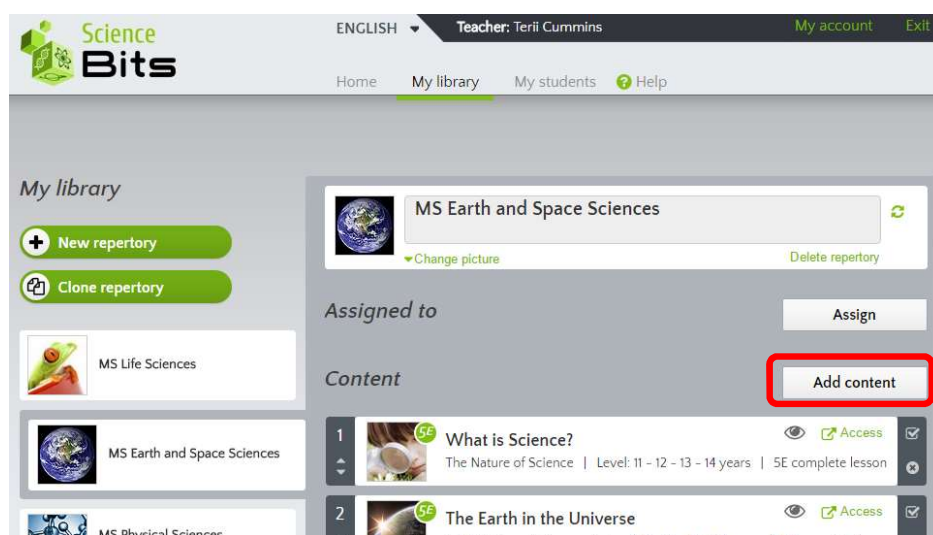
## Creating personalized Scope & Sequences

You will not need this functionality for the TN state review. However, to allow you to understand the Science Bits interface, we explain how to create personalizer repertoires that a teacher can assign to the full class or to subgroups within a class.

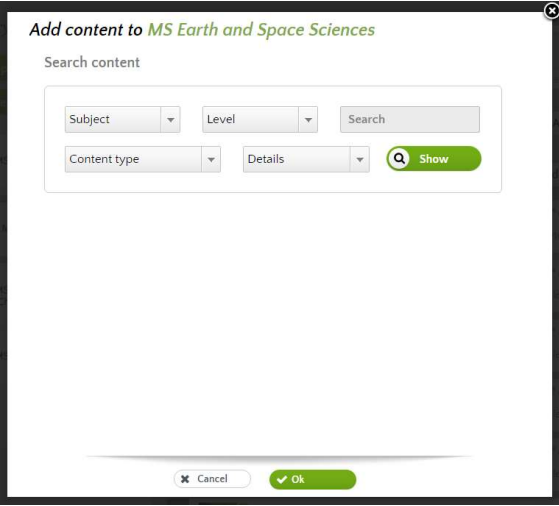
Remember that almost everything in Science Bits is clickable and explorable.

This includes any questions, pictures, virtual activities and videos. If you notice, the icons on the right side constantly update to the content you are viewing. For instance, in the “Explain” section, the pen icon will have different questions for each “slide” of content.

Content can also easily be searched and added to your repertoires, if you wish. To do this, from the content library, click on “Add Content” and select the subject. You can then search by key word or content type. (see below)







1. To add the content, check the “Add” check box and click OK.  
The content in your library has already been aligned with the TN standards for MS grades, so using the filter *Level* may be a bit confusing. We recommend you use the following filters: *Subject*, *Content type* & *Search*. You will then see the content to be added to the bottom of the list of content in the content library and you will be able to select the content you want to add. (see below)

